

## **Remarks**

### **Status of the Application**

Claims 68-81 are pending with the entry of this amendment. Claims 76-77 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 68-81 stand rejected under 35 U.S.C. § 103(a).

### **The Amendments**

The requested amendments to the claims do not add new matter to the application as originally filed. For example, the amendments to claims 68, 76 and 77 find support in the originally filed application at page 7 lines 4-7 and page 9 lines 19-27.

### **The 35 U.S.C. § 112, Second Paragraph Rejection**

Claim 76-77 stand rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite. In particular, the Office Action states that it is unclear what limitation is claimed by terminology such as “permits” in line 2 of claims 76-77. Applicants have amended claims 76-77 to clarify that the liquid droplet deposition system comprises electrical connections between the power supply and each of a plurality of capillaries (claim 76) or sample deposition sites (claim 77), and that these electrical connections allow the independent application of a charge to individual capillaries or sample deposition sites. These amendments are believed to obviate this ground of rejection.

### **The 35 U.S.C. § 103(a) Rejection**

Claims 68-81 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sauter (US Patent No. 6,149,815) in view of King et al. (US Patent No. 6,132,582). Applicants respectfully traverse this rejection.

*Prima facie* obviousness requires, *inter alia*, that the prior art reference (or references when combined) must teach or suggest all of the limitations of the claim. Manual of Patent Examining Procedure, § 2143. The cited references do not satisfy this requirement. Claim 68, as currently amended, is directed to a liquid droplet deposition system in which liquid droplets are formed at ends of a plurality of capillaries, and an electric field is applied to draw the droplets to a sample plate that is positioned beneath the capillaries. The claim requires that the liquid droplets themselves are either charged or grounded. The Sauter patent, in contrast,

describes an apparatus for electrokinetic dispensation of liquids in which neither the liquid to be dispensed or the reservoirs that hold the liquid to be dispensed is charged or grounded.

Therefore, the Sauter patent does not describe all elements of Applicants' claims. To the contrary, the Sauter patent teaches away from a dispensing apparatus in which the liquid is charged or grounded, stating that an object of the invention is to transport and dispense liquid "with no adverse electrochemistry, no electric contact with dispensing liquid, no pressure variation in liquid during flow, no joule heating and no moving parts." (column 2, lines 18-22).

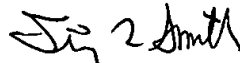
The liquid deposition system claimed by Applicants has significant advantages over the system described by Sauter. For example, the apparatus described in Sauter, which lacks any electrical connection to the liquid droplets or the reservoirs from which the liquid is discharged, requires very high voltages to accomplish dispensation of the liquid. Example 1 of the Sauter patent states that 30,000 volts is used (column 4, lines 22-24), and Examples 3, 4 and 6-12 specify that 15,000 volts is applied. In contrast, Applicants' system functions with much lower voltages. Typical voltages for Applicants' system are between 500 and 3000 volts (page 11, line 1). The ability to deposit liquids at lower voltages minimizes the possibility of adverse electrochemistry and joule heating, and also allows one to apply rapid pulses of voltage, thereby precisely controlling the amount of liquid deposited by the number and duration of the pulses.

The King patent likewise does not teach or suggest a deposition system in which the liquid droplet is charged or grounded. Therefore, claim 68 is not *prima facie* obvious over the cited references. Claims 69-81 each ultimately depend from claim 68, so these claims are likewise not obvious over the cited references. Accordingly, Applicants respectfully request that the rejection be withdrawn.

**Conclusion**

In view of the foregoing, Applicants believe all claims now pending in this application are in condition for examination. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned attorney at 858-812-1547.

Respectfully submitted,



Timothy L. Smith, Ph.D.  
Reg. No. 35,367

GENOMICS INSTITUTE OF THE NOVARTIS RESEARCH FOUNDATION  
10675 John Jay Hopkins Drive, Suite E225  
San Diego, CA 92121  
Tel: (858) 812-1547  
Fax: (858) 812-1981